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Avalanche Notes

U.S. Forest Service
Westwide Avalanche Network

MARCH 1992

March is usually the most reliable month for snowfall: even in the drought winters of 1976-77 and 1980-81, March came through with decent snows. But not this year: March '92 brought depressingly dry conditions to the vast majority of Westwide sites and closed a winter season that was one of the driest since the Westwide network began. Jackson Hole, WY, for example, has just endured its second driest winter of record, receiving 162" of snow from December-March, compared to 160" in 1976-77. And Snowbird, UT recorded but 167", which was its driest of record -- eclipsing the previous nadir of 255" in 1985-86 -- and which amounted to 49% of average.

The March storm pattern was similar to previous months in which storms tracked far north or south. Alyeska, AK recorded 145" of snow, most coming in two stormy periods -- 37" on the 7th-11th, and 79" on the 19th-28th -- and wound up with 168% of normal. Eaglecrest, AK, however, was south of the storm track and recorded but 13" for the month.

The Cascades of Washington and Oregon were plumb dry. Snoqualmie Pass, Stevens Pass, and the base area of Crystal Mtn. all recorded no snow at all. At Snoqualmie, it was the first March since 1950 without snow, and this season has been second only to 1976-77 for lowest snowfall. Elsewhere, Mt. Hood Meadows recorded 7% of March normal; Mt. Rainier, 11%; and the top of Crystal Mt., 15%.

The Sierra of California were only slightly snowier. For the month, Alpine Meadows got 55%; Squaw Valley, 40%; and Mammoth Mtn., 36% of normal.

In the Intermountain region, Jackson Hole, WY, and Snowbird, UT, each got 37% of normal; Teton Pass, WY, and Bridger Bowl, MT, 30%; Big Sky, MT, 26%; Sun Valley, ID, 21%; and Big Mtn., MT, 15%.

The Rockies of Colorado benefited from a moist southern storm track that brought a series of storms all month and one record storm for Telluride in the San Juan Mts. On the 3rd a deep cyclonic system hit Colorado from the southwest and brought heavy snow to portions of the San Juans and the east slope of the Continental Divide. On the 4th-6th, Bear Lake in Rocky Mtn. National Park got 26"; Monarch, 29"; Telluride, 41"; and Red Mtn. Pass, 41" (49" at Red Mtn. on the 3rd-6th). On the 5th alone, Telluride recorded 26" and Red Mtn., 23". This storm triggered an extreme avalanche hazard and a major cycle in the Red Mtn./Telluride area. More on this later. For the month, Monarch got 140% of normal; Red Mtn. Pass, 130%; Vail, 127%; Telluride, Berthoud Pass, and Winter Park (town), 120%; Copper Mtn., 115%; Breckenridge, 108%; Aspen Highlands, 95%; Aspen Mtn., Gothic, Sunlight, and Winter Park (ski area), 92%; and Wolf Creek, 75%.

The rash of fatal avalanche accidents that began in February continued into March. There were three fatal incidents, all in Colorado. On March 1, two snowshoers triggered an avalanche at Lost Lake, near Eldora in the Front Range of Colorado. One man was partly buried and survived; the other, age 22, was buried 6-1/2' deep. Probers recovered his body the following day.

On the 5th in the middle of an intense storm on Red Mtn. Pass, CO, highway crews were sweeping the highway of traffic before closing the road, but they were too late. Several avalanches blocked the highway, and six people were stranded inside the snowshed beneath the East Riverside path. At 3 a.m., two CDOT workers left the shed to plow through avalanche debris, but the plow threw a tire chain. While the men were outside the plow, another avalanche hit and deeply buried them and the plow. The four left inside the shed were unable to carry out a rescue, and the blizzard and extreme avalanche hazard kept a rescue team from reaching the site that day, though a plow made it to the shed from the opposite side and rescued the four survivors. The two victims were buried under at least 10' of snow, were partially protected by the plow, and were in voice contact for many hours. One man, 38 years old, died of hypothermia after 9-10 hours burial. The other was buried near the cab door and eventually was able to get into the cab and grab a small shovel. He began digging, and at about 6 p.m., after being buried 15 hours, he broke through to daylight and life! Using the phone inside the snowshed, he called rescuers who came to his aid.

On the 29th at Montezuma near Keystone and Arapahoe Basin, CO, a snowcat skier triggered and was deeply buried by an avalanche. Rescuers recovered his body 18 hours later from under 10' of snow. Probers made the find in an area near two dog alerts. The victim was a 28-year-old visitor from Osaka, Japan.

March also brought several other incidents of note. On the 6th at Jones Pass in the Front Range of Colorado, a ski tourer was totally buried in a slide. His life was saved when his companion heard his shouts coming from beneath the snow. On the 26th, two mountain bikers (a first!) were caught in a slide while riding near Keystone, CO. One bike was buried and later found with a metal detector. On the 28th at Alyeska, AK, a patroller suffered a broken leg when caught in a slide. And finally a follow-up to the avalanche death on February 29 in the Teton Range, WY: On March 11, probers recovered his body from under 4' of snow.

March produced a total of 26 reported avalanche incidents which resulted in 36 people caught, 7 partly buried, 7 buried, 3 injured, and 3 killed. Five vehicles were buried and three damaged. Through March, 110 incidents have led to 139 people caught, 32 partly buried, 27 buried, 16 injured, and 15 killed. Seven vehicles, one lift, and two property sites have been damaged. Damage estimate is \$65,000 for the year.

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

MARCH 1992
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL				WATER EQUIVALENT								SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION					
	TOTAL SNOW- FALL IN.	AVG DEN	MAX		TOTAL WATER IN.	MAX IN.	D HR.	D T	NUMBER OF DAYS				D A	T IN.	MIN IN.	AVG IN.	MEAN MAX	MEAN MIN	AVG	F	AVG FOR MO.	6 HOUR PERIODS GE	FASTEST HOUR	D A	
			IN.	D					GE	GE	GE	GE													
			IN.	D					GE	GE	GE	GE													
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																									
ARAPAHOE BASIN, COLO	82.1	.04	12	29	3.27	.29	27	15	9	0	0	80	29	50	63	28.4	10.2	19.3	10.5	19	1	--	--	--	
ASPEN MOUNTAIN, COLO	45.9	.11	9	28	5.21	1.00	28	13	10	4	1	73	29	39	61	33.4	17.5	25.5	6.3	5	1	22	130	3	
ASPEN HIGHLANDS, CO	49.8	.10	9	9	5.00	.95	28	12	9	3	0	64	28	41	54	34.7	20.0	27.3	4.9	0	0	13	290	16	
BEAR LAKE, RMNP, CO	60.6	.14	18	5	8.47	4.10	5	10	6	3	2	65	29	35	53	31.8	21.4	26.6	--	--	--	--	--	--	
BERTHOUD PASS, COLO	69.6	.07	11	9	5.04	1.00	9	13	9	4	1	79	29	53	66	33.1	11.1	22.1	11.5	27	7	30	320	28	
BRECKENRIDGE, COLO	60.7	.07	10	20	4.13	.60	20	12	10	3	0	68	29	46	56	27.2	13.5	20.3	13.0	44	11	31	290	8	
COPPER MTN, COLO	57.6	.08	7	22	4.53	.55	20	16	8	3	0	62	25	43	51	34.6	12.5	23.5	12.7	51	9	29	240	27	
GOTHIC, COLO	55.6	.07	13	28	3.77	1.04	28	12	8	1	1	60	28	44	47	38.4	14.2	26.3	--	--	--	--	--	--	
MONARCH, COLO	77.0	.08	15	4	6.39	1.20	4	11	7	6	2	75	9	48	65	33.6	16.2	24.9	18.8M	89M	65M	40	90	3	
POWDERHORN, COLO	64.1	--	10	4	--	--	--	--	--	--	--	73	28	44	61	39.4	20.3	29.9	--	--	--	--	--	--	
RED MTN PASS U.S.550	87.5	.07	23	5	6.45	1.70	5	14	10	4	2	90	6	57	74	36.5M	18.8M	27.7M	--	--	--	--	--	--	
SUNLIGHT, COLO	48.0	.09	14	28	4.20	1.40	28	12	7	2	1	67	28	42	50	37.2	19.6	28.4	--	--	--	--	--	--	
TELLURIDE, COLO	72.7	.08	23	5	5.74	1.80	5	13	8	5	1	75	6	47	64	29.9	15.9	22.9	4.7	0	0	13	220	22	
VAIL, COLO	91.5	.08	14	28	7.28	1.20	28	14	12	8	2	89	28	57	70	30.1	17.8	23.9	6.6	0	0	18	290	16	
WINTER PARK S.A., CO	65.5	.08	12	9	5.38	1.05	9	13	8	5	1	77	29	50	63	32.2	15.9	24.0	7.4M	3M	0M	21	190	7	
WINTER PARK 1E, COLO	51.2	.09	10	9	4.37	.88	9	10	8	3	0	56	29	37	47	37.9	13.6	25.8	--	--	--	--	--	--	
WOLF CREEK, COLO	59.8	.10	11	22	6.20	1.20	22	13	11	5	2	99	31	77	87	33.6	15.9	24.8	14.4M	66M	35M	44	30	11	
INTERMOUNTAIN																									
BIG SKY, MONT	13.5	--	4	8	--	--	--	--	--	--	--	53	18	47	49	37.4M	22.2M	29.8M	4.9M	1M	0M	--	--	--	
BIG MOUNTAIN, MONT	7.5	--	2	2	--	--	--	--	--	--	--	87	1	74	80	43.3	24.5	33.9	--	--	--	--	--	--	
BRIDGER BOWL, MONT	18.6	.10	8	8	1.78	.70	8	4	4	2	0	64	8	54	58	44.2	25.8	35.0	7.3	12	0	21	280	10	
GRAND TARGHEE, WYO	23.5	.09	9	18	2.15	.85	18	5	3	2	0	63	19	48	52	41.0M	20.6M	30.8M	--	--	--	--	--	--	
JACKSON HOLE 1, WYO	25.6	.10	5	20	2.48	.50	20	8	7	1	0	71	19	62	67	32.5	25.3	28.9	10.2	16	6	38	270	21	
SCHWEITZER BASIN, ID	2.5	.16	1	4	.41	.30	4	2	1	0	0	88	1	70	77	43.2	29.3	36.2	--	--	--	25	290	11	
SNOWBIRD, UTAH	36.5	.10	9	5	3.72	1.26	5	7	5	3	1	58	5	43	51	43.2	25.8	34.5	13.9	54	22	--	--	--	
SUN VALLEY, IDAHO	7.0	.07	2	3	.52	.15	8	4	0	0	0	55	8	48	50	35.7	25.6	30.7	9.2M	16M	0M	26	150	2	
TETON PASS, WYO 22	17.0	.10	6	18	1.78	.67	18	4	3	1	0	36	19	24	29	32.7M	20.8M	26.8M	--	--	--	--	--	--	
WEST COAST																									
ALPINE MEADOWS, CAL	36.0	.09	15	6	4.21	1.47	6	10	5	3	1	66	7	46	55	43.6	27.8	35.7	17.0	75	46	50	80	31	
ALYESKA, ALASKA	131.7	.08	22	24	11.53	2.20	24	16	14	9	3	172	27	124	143	28.4	18.5	23.5	5.3	4	0	19	120	9	
CRYSTAL MTN 2, WASH	13.4	.09	4	17	1.26	.30	15	5	4	0	0	73	6	61	66	42.7	28.0	35.4	--	--	--	--	--	--	
CRYSTAL MTN 1, WASH	.4	.25	0	5	1.65	.70	15	4	3	1	0	50	1	41	46	49.8	28.8	39.3	10.6	33	7	26	200	4	
EAGLECREST, ALASKA	13.1	.05	3	2	8.58	2.07	10	15	11	6	2	35	2	24	28	35.4M	26.0M	30.7M	--	--	--	--	--	--	
HEAVENLY VALLEY, CAL	20.0	.04	8	31	.81	.20	31	6	1	0	0	45	6	36	39	40.9	22.4	31.7	--	--	--	--	--	--	
JUNE MOUNTAIN, CALIF	32.5	.07	9	6	2.33	.80	6	11	4	1	0	57	9	47	51	42.1	21.2	31.6	--	--	--	--	--	--	
MAMMOTH MTN, CALIF	24.5	--	6	6	--	--	--	--	--	--	--	54	7	46	50	38.8M	17.6M	28.2M	--	--	--	--	--	--	
MT. HOOD MOWS, ORE.	6.0	.15	3	17	1.79	.55	5	5	4	0	0	70	1	56	64	49.2M	31.4M	40.3M	6.8M	15M	8M	--	--	--	
MT. RAINIER PARADISE	12.2	.15	4	17	2.74	.76	17	7	6	1	0	132	5	114	123	45.7	31.0	38.3	3.6	1	0	15	100	28	
SNOQUALMIE PASS 1-90	.0	--	0	1	1.91	.44	18	8	4	0	0	49	1	2	29	51.6M	29.9M	40.7M	5.4M	2M	0M	--	--	--	
SQUAW VALLEY, CALIF	23.9	.09	10	6	2.39	1.21	6	5	2	1	1	52	6	33	44	47.8	25.4	36.6	--	--	--	--	--	--	
STEVENS PASS SE WASH	.0	--	0	1	1.15	.31	4	5	3	0	0	73	1	45	59	45.5M	30.7M	38.1M	5.4M	6M	0M	--	--	--	
SUGAR BOWL, CALIF	41.0	--	18	6	--	--	--	--	--	--	--	118	6	95	105	46.1	25.5	35.8	10.5M	40M	13M	--	--	--	

-- DATA INCOMPLETE OR MISSING

M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING

IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

MARCH 1992
AVALANCHE SUMMARY

AREA	TOTAL	TOTAL	DATES OF		MAX IN ONE DAY	NUMBER OF DAYS WITH		TYPE OF AVALANCHE							FRACTURE LINE HEIGHTS IN FEET			VERTICAL DESCENT IN FEET				AVALS ACROSS MAJOR ACCESS ROADS NO.			
	A V A L S	A V A L S	F I R S T	L A S T		A V A L S	S L U F S	A R T I F I C I A L	N A T U R A L	SLABS					L O O S E	GE 2	GE 4	GE 6	GE 200	GE 500	GE 1000		MAX FEET		
										H U H A R D	S O F T	D I F F I C U L T	T R A N S V E R S E												
														F I R M										S L O W	F E E L Y
-----NUMBER-----																									
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																									
ARAPAHOE BASIN, COLO	29	84	4	29	8	28	7	0	13	16	15	14	0	0	27	6	1	14	11	1	1100	0			
ASPEN HIGHLANDS, COL	61	146	3	31	15	25	15	0	30	31	0	32	6	22	22	5	0	36	20	14	2900	0			
ASPEN MOUNTAIN, COLO	21	29	3	28	9	5	6	0	21	0	0	12	5	4	13	0	0	10	2	0	500	0			
ASPEN SNOWMASS, COLO	74	110	1	23	23	6	12	0	68	6	28	46	0	0	53	35	1	39	1	1	2500	0			
BERTHOUD PASS, COLO	16	54	6	25	5	25	6	0	2	14	2	14	0	0	9	1	0	14	4	0	500	0			
BERTHOUD PASS U.S.40	3	8	9	25	1	25+	3	0	2	1	1	2	0	0	3	0	0	3	3	3	2300	0			
GOthic, COLO	28	123	6	31	7	29	9	0	1	27	0	15	3	10	9	1	0	28	20	7	2100	0			
LOVELAND PASS U.S. 6	9	15	29	29	9	29	1	0	1	8	1	3	3	2	4	1	0	9	4	0	800	1			
MONARCH, COLORADO	25	39	4	24	16	4	5	0	16	9	23	2	0	0	23	6	4	0	0	0	0	1			
RED MTN PASS U.S.550	10	22	5	28	8	5	3	0	2	8	0	10	0	0	1	0	0	10	10	5	3000	8			
SUNLIGHT, COLORADO	7	10	11	29	3	29+	3	0	7	0	0	3	4	0	7	2	1	7	1	0	500	0			
TELLURIDE, COLO	51	87	4	28	34	5	8	0	42	9	8	41	2	0	48	13	4	37	17	10	1800+	0			
URAD MINE, COLO	6	12	5	25	2	25+	4	0	2	4	3	3	0	0	5	3	2	6	6	3	1600	0			
VAIL, COLO	3	18	6	29	1	29+	3	0	2	1	0	3	0	0	2	1	0	2	1	0	500	0			
WINTER PARK S.A., CO	3	20	3	9	2	9	2	0	0	3	0	3	0	0	3	2	2	3	0	0	400	0			
WOLF CREEK, COLO	21	127	6	24	11	22	4	0	21	0	2	19	0	0	1	0	0	9	0	0	375	0			
INTERMOUNTAIN																									
BIG SKY, MONT	24	159	18	25	22	18	3	0	24	0	0	22	2	0	1	0	0	23	14	0	800	0			
BRIDGER BOWL, MONT	15	231	2	21	5	8	5	0	15	0	0	12	0	3	0	0	0	14	12	1	1000	0			
GRAND TARGHEE, IDAHO	6	20	19	19	6	19	1	0	6	0	0	6	0	0	2	0	0	6	4	0	900	0			
JACKSON HOLE, WYO	6	96	3	19	1	19+	6	0	2	4	1	1	2	2	0	0	0	6	3	0	700	0			
SUN VALLEY, IDAHO	2	13	3	4	1	4+	2	0	2	0	0	0	1	1	1	0	0	2	1	0	600	0			
WEST COAST																									
ALPINE MEADOWS, CAL	119	553	6	17	65	6	3	0	109	10	0	119	0	0	9	0	0	95	6	0	600	0			
ALYESKA, ALASKA	45	239	3	28	17	8	6	0	44	1	1	44	0	0	37	4	1	45	44	31	2300+	0			
CRYSTAL MTN, WASH	6	437	2	18	4	5	3	0	4	2	0	1	2	3	2	0	0	6	3	0	600	0			
HEAVENLY VALLEY, CAL	5	44	6	31	4	31	2	0	1	4	0	0	0	5	0	0	0	5	0	0	300	0			
KIRKWOOD MDWS, CAL	48	221	6	16	17	6	4	0	43	5	10	36	0	2	20	0	0	41	12	2	1000+	0			
MAAMOTH MTN, CALIF	12	12	6	6	12	6	1	0	12	0	0	5	0	7	0	0	0	12	6	0	800	0			
MT. HOOD MEADOWS	4	223	6	6	4	6	1	0	4	0	0	0	4	0	0	0	0	4	3	0	800	0			
SQUAW VALLEY, CALIF	61	225	6	16	52	6	2	0	61	0	0	61	0	0	6	0	0	41	7	0	700	0			
SUGAR BOWL, CALIF	29	130	6	6	29	6	1	0	29	0	1	28	0	0	1	0	0	18	1	0	750	0			

-- = DATA INCOMPLETE OR MISSING
GE = GREATER THAN OR EQUAL TO
+ = ALSO OCCURRED ON OTHER DATES